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AUTHOR Zook, Doris: And Others
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ABSTRACT

This Project Drive booklet titled Maintenance is one of eight booklets designed for intermediate-level English-as-a-second-language students and low-level adult basic education/basic reading students. The goal of the booklet is to aid the student in developing the oral and sight vocabulary necessary for a basic driver training program. The booklet contains exercises designed either for individual or group work. Appended material includes supplementary exercises, a pretest and posttest, and a word list of important vocabulary presented in each unit of the booklet.
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PROJECT DRIVE

MAINTENANCE

BOOK THREE

1979

LANCASTER-LEBANON INTERMEDIATE UNIT 13

BOX 5026 Lancaster, PA 17601

Doris Zook - Curriculum Coordinator

Shara Rineer - Illustrator

Sherry Royce - Project Director

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
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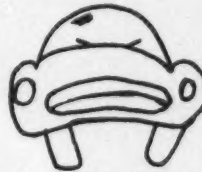
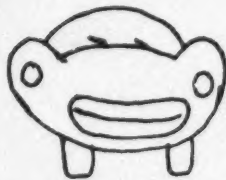
Sherry Royce

MAINTENANCE

To Keep Your Car Running Smoothly and Safely

Are you a proud car owner? That's an expensive machine you have. And just like any machine, a car needs good care to keep it running smoothly and safely. Regular car care is called *maintenance*. Proper maintenance can do a lot to add to the life of your car, and protect your own life, too. It will also help you avoid expensive emergency repairs.

This



or
this?

There are many things you can do to help your car keep running smoothly and looking good...even if you aren't a mechanic! They may be as simple as washing and waxing the car to protect its paint and metal. Or you may want to do more complicated maintenance such as changing the oil. But where do you start? A good place to learn about your car is from the *owner's manual*. It will tell you a lot about taking care of your car.



EXERCISE 1: Fill in the blank with an appropriate word.

1. A car needs good care to keep it running
_____.
2. The regular care that a car needs is called
_____.
3. Proper maintenance can do a lot to _____
to the life of your car.
4. There are a lot of things you can do to help
your car keep running well, even if you aren't
a _____!
5. A good place to learn about your car is from
the _____.



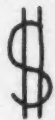
The most frequent care you must give your car is to check its *fuel*. The fuel gauge (gas gauge) will show you if the tank is getting empty. Try not to let it get below $\frac{1}{4}$ full. In winter try to keep the tank $\frac{1}{2}$ full.

When you do need gas, be sure to get the right type. There are two main types - leaded and unleaded. If your car needs unleaded gas it will be written on the dashboard or by the gas cap "unleaded fuel only". Leaded gas could damage your car and it is illegal to use. If there is nothing written, then you can use either leaded or unleaded gas.

You must also decide between regular gas and higher *octane* gas. Octane is a measure of the gas's anti-knock quality. If the gas does not have a high enough octane for your car, it will burn too fast and the engine will make a "knocking" or "pinging" noise. Your owner's manual will tell you what kind of gas is best for your car.

EXERCISE 2: Is the sentence true (T) or false (F).
Circle the right answer.

1. T F Most cars use diesel fuel.
2. T F In winter its best to let your gas tank get almost empty before you fill it.
3. T F There are two main types of gas -
leaded and unleaded.
4. T F If your car has nothing written about
kind of gas it must have, you must use
leaded gas.
5. T F If your car engine "knocks" or "pings"
you should try a higher octane gas.



Gas is becoming more and more expensive.

One way to save money is to use a *self-service* gas station - you can save a few cents on each gallon. In a full-service gas station, you drive the car to the right gas pump and tell the *attendant* how much gas you want - "fill it up", "\$5.00 worth". He pumps the gas, checks your oil and water and other fluids, and washes your windows. You pay more for this service. In a self-service station you must pump the gas yourself and nobody checks your car for you. You save money, but do be sure to regularly make those quick checks that the gas attendant usually does.

Did you ever pump your own gas? It's easy! There are usually directions written on the gas pump. It works like this:

1.



remove the gas cap.

2.



take the nozzle from the gas pump.

3.



turn the pump handle to "on".

(This should change all the numbers on the pump to 0.)

4.



place the nozzle in the gas tank and squeeze the trigger; it will click off when the tank is full.

5.



turn the pump handle to "off" and hang up the nozzle.

6.



put the gas cap back on and pay the attendant.

Always remember - do not smoke in a service station

EXERCISE 3: Arrange the steps for getting gas in the proper order. Put the correct number beside the step.

_____ place the nozzle in the gas tank and squeeze.

_____ put the gas cap back on.

_____ turn the pump handle to "on".

_____ take the nozzle from the pump.

_____ remove the gas cap.

_____ pay the attendant.

_____ turn off the pump.

_____ stop smoking.

If you choose to pump your own gas, you should plan to regularly make the quick checks an attendant would make.

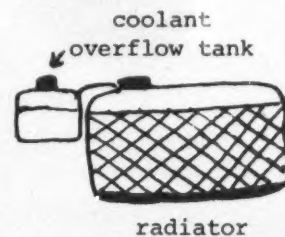
CHECK THE OIL

1. when the engine is cold, pull the *dipstick* from its hole on the side of the engine.
2. wipe it clean with a cloth.
3. put the dipstick all the way back into the hole.
4. remove it again and read it; the level should be in the safe range.
5. if the level shows that you should add oil, ask someone to help you the first time to show you where and how to add oil and what kind (weight) oil you should use.



CHECK THE RADIATOR (unless you have an air-cooled engine.)

1. many new cars have *coolant* (water plus antifreeze) overflow tanks; if your car has one of these, you can check the level of coolant in the radiator by looking at the overflow tank.



2. If you don't have an overflow tank, check the level of coolant in the radiator only when the engine is cold. The system is pressurized and when the engine is hot, this pressure would force hot steam and liquid on you and on the engine.



-the level should be about one inch below the cap when the engine is cold.

-if its not, add more coolant solution - 50% water and 50% coolant.

EXERCISE 4: Fill in the blank with the appropriate word.

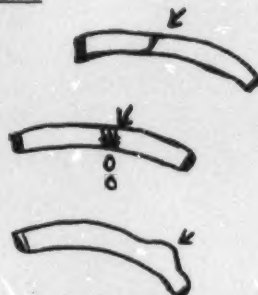
1. To check the oil use the _____ stick.
2. Use the right kind (_____) of oil for your car and the season.
3. Many new cars have coolant overflow _____.
4. The level of coolant in the radiator should be _____ below the cap.
5. You usually add a coolant solution of _____ water and _____ coolant.

CHECK THE FAN BELT AND HOSES

1. look for cracks

or leaks

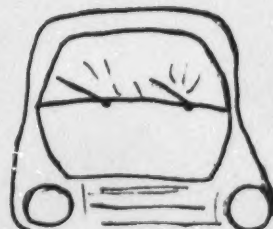
or bulges



2. have any that are in poor condition replaced.

CHECK THE WINDSHIELD WASHER FLUID

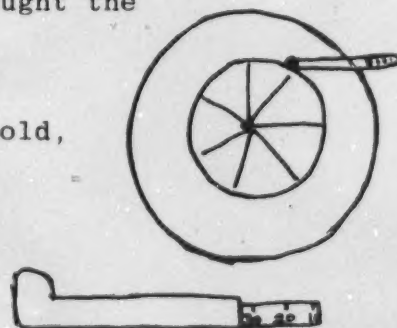
1. look at the clear plastic container under the hood to check the level of washer solution.



2. add more if it's low - this will save you trouble in bad weather.

CHECK TIRE PRESSURE

1. find out what is best pressure for your tires - from the owner's manual or information you got when you bought the tires.
2. check the tires when they are cold, by placing a pressure gauge on the valve; it will tell you how much pressure is in the tire.



3. add more air at a gas station, if needed.
4. (also check the wear on the tread of the tire,
when you check the air pressure).

14.

EXERCISE 5: Match the place to check with what to check for. Draw a line between the matching pairs.

- | | |
|-----------------------|-----------------|
| 1. Fan belt and hoses | a. tread |
| 2. Windshield | b. cracks |
| 3. Tires | c. solution |
| | d. leaks |
| | e. air pressure |
| | f. bulges |

At the end of this booklet you will find a more detailed checklist that you can use for regular car check-ups.

In addition to these quick checks, your car needs other regular maintenance that is a little more complicated. You may choose to have a mechanic or a friend who works on cars take care of this maintenance. Or, with some study and practice, plus the right tools and parts, you may want to do the work yourself.

This regular maintenance includes:

- oil change - plus oil filter change
- lubrication
- automatic transmission fluid check
- brake system check
- cooling system drained and cleaned
- battery cleaned and checked
- engine tune-up

On the following page is a suggested maintenance schedule. The schedule that your car needs may be a little different. So, be sure to check your owner's manual.

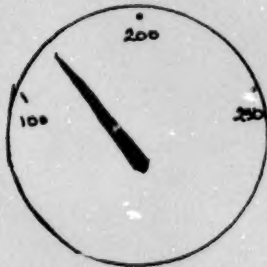
MAINTENANCE	OFTEN	REGULAR CARE
Oil	Check the level	Change every 3-4 months or 3,000 miles (4,800 km)
Oil filter		Change every 6,000 miles (9,660 km)
Tires	Check air pressure	Rotate every 6,000 miles (9,600 km)
Battery	Check fluid level	Check and clean every 3-4 months or 3,000 miles (4,800 km)
Windshield washer fluid	Check the level	
Brake fluid		Check the level every 3-4 months or 3,000 miles (4,800 km)
Engine coolant	Check the level	Check the strength every 3-4 months or 3,000 miles (4,800 km)
Chassis		lubricate (grease) every 3-4 months or 3,000 miles (4,800 km)
Air Filter		Clean every 6,000 miles (9,600 km) Replace when no light can be seen through it.
Steering linkage		Check every 3-4 months or 3,000 miles (4,800 km)
Brake System		Check and adjust every 6,000 miles (9,600 km)
Tune-up		Every 12 months or 6,000-12,000 miles (9,600-19,200 km)
Spark plugs and points		Clean and adjust every 6,000 miles (9,600 km) replace every 12,000 miles or 19,200 miles
Automatic transmission fluid		Check every 12 months or 12,000 miles (19,200 km); change every 24,000 miles (38,400 km)
Fan belt and hoses	Check	Replace when necessary

EXERCISE 6: When should you check it? Put a check mark in the appropriate column.

	OFTEN	REGULAR CARE
1. oil		
2. tires		
3. battery		
4. windshield washer fluid		
5. engine coolant		
6. fan belt and hoses		
7. lubricate chassis		
8. spark plugs and points		
9. tune-up		

Danger Signals

Even though you take good, regular care of your car, unexpected problems may come up. Be sure to look at the gauges on the dashboard often. They tell you how your car is working. They are your DANGER SIGNALS if something is wrong. Let's review what we have learned about them:



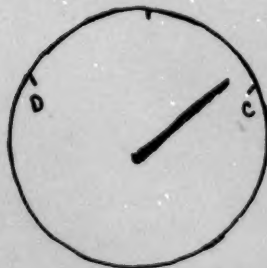
temperature
gauge

The *temperature guage* tells you how hot the engine is. If it is too hot (around 250°), STOP THE CAR! Do not drive when the engine is too hot. When it has cooled check the coolant level and hoses, or have a mechanic do it.

The *oil pressue gauge* tells you if oil is being pumped through the engine at the right pressure. If it is low (towards 0), STOP THE CAR. The motor may not be getting enough oil. Check the oil level and add more if needed. Call a mechanic if the oil level is not the problem.



oil pressure
gauge



ammeter

The *ammeter* (or a warning light) tells you if electricity is being taken from the battery (D or discharge). After you start the car, if the needle doesn't move towards C, have the car checked right away. Do not turn off the engine, because you may not be able to start it again.

EXERCISE 7: What do you do if?

1. The temperature gauge says that the engine is hot.
2. The oil pressure gauge shows that the oil pressure is too low.
3. The ammeter (or warning light) tells you that the battery is discharging.

Some states have compulsory motor vehicle inspection programs. These require a car owner to keep his car in safe running order. Pennsylvania requires you to have your car inspected two times a year. You must take your car to an official state inspection station for this. If your car doesn't pass inspection, the station (usually a service station) will tell you what needs to be repaired or replaced in order that it will pass. When your car passes inspection, the station will put an inspection sticker like this on your windshield:



SHOWS ON THE
OUTSIDE

YOU MUST COMPLETE ALL INFORMATION BELOW

X WHEEL PULLED

RIGHT FRONT

LEFT FRONT

RIGHT REAR

LEFT REAR

STATION NUMBER

--	--	--	--

Year _____, Make _____, Type _____

VIN _____

Odometer Reading _____

County _____

Fert. Mech. Sig. _____

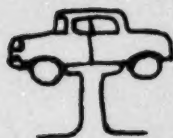
Date of Inspection _____

THIS STICKER EXPIRES OCT. 31, 1979
NUMBER (3) INSPECTION STICKER WILL
BE AVAILABLE ON OR AFTER AUG. 1 1979

SHOWS ON THE
INSIDE

EXERCISE 8: Fill in the blank with an appropriate word(s).

1. Some states have compulsory motor vehicle _____ programs.
2. These require a car owner to keep his car in _____ running order.
3. In Pennsylvania you must have your car inspected _____ times a year.
4. You must take your car to an _____.
5. When your car passes inspection, the station will put an _____ on the windshield.



It is important that you choose your service and inspection stations carefully. Some stations may overcharge or do unneeded work. Some do the work poorly. How

can you find an honest mechanic who does reliable work? Start by asking your friends and relatives where they have their cars fixed. Are they satisfied with the work? If they are, give their mechanic a try. If they aren't you know one mechanic to avoid. Here are some other places you might check:

- a new car dealer's service department - probably more expensive unless your car is under warranty (then you must go here for work).
- independent service stations or garages.
- diagnostic centers - to help you find a mechanical problem and then fix it yourself or tell your mechanic.
- a discount store service department - for parts you need to repair the car yourself; or quick repair jobs such as wheel balancing.

EXERCISE 9: Is the sentence *true* (T) or *false* (F)?
Circle the correct letter.

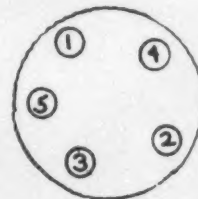
1. T F Overcharge means to give you too high a bill.
2. T F All mechanics do good repair work.
3. T F If you want repairs done to your car under warranty, you must go to a new car dealer's service department.
4. T F A diagnostic center usually includes repair work too.
5. T F A discount store service department is a good place to shop for parts that you need to fix your own car.

Remember shop around for your mechanic. Find out about his training and qualifications and job experience. When you find a good one, keep going back to him. Be a regular customer. He will be able to help you better when he knows your car better. Then you and he will work like a team, keeping that expensive machine of yours running smoothly and safely!

Some Emergency Repairs

1. Flat tire

1. Pull off the road as far as you can. Park on level ground. Put an automatic in "Park"; a standard transmission in gear. Put on the emergency brake.
2. Block the wheels (with a stone or piece of wood).
3. Take off the hubcap.
4. Take the lug wrench and loosen each wheel nut one turn.
5. Take out the spare tire and jack.
6. Jack up the car so that the flat tire is 2-3 inches off the ground.
7. Remove the wheel nuts in this order-
Then pull off the tire.
8. Put the spare tire on and tighten each nut.
Jack the car down a little. Finish tightening each nut, in the order you took them off.
9. Lower the car and remove the jack.
10. Put the hubcap back on or in your trunk. Put the tools and the flat tire in your trunk. Remove the wheel blocks.
11. Get the flat tire fixed as soon as you can.



2. Out-of-Gas

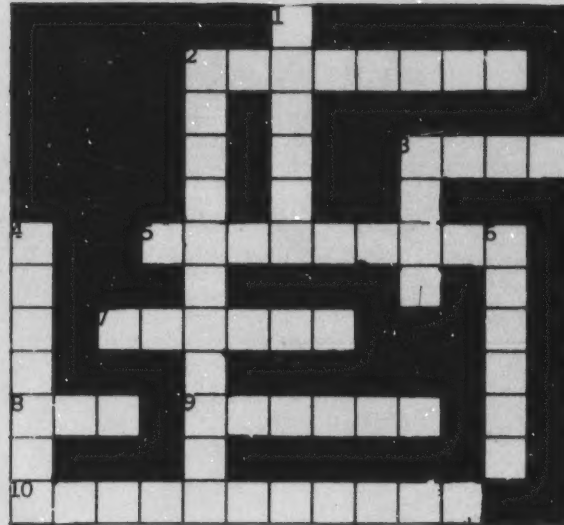
1. Try not to let this happen. When the gas tank gets very low, dirt and water can be pulled into the fuel line. This is bad for the car.
 2. If you think you are out of gas, pull the car off to the side of the road.
 3. To be sure there really is no more gas, remove the gas cap and push up and down on the car. Do you hear any liquid splashing in there? If not, then you are out of gas.
 4. Walk to a gas station if one is near, or wait for help.
 5. When you get some gas, pour most of the can into the tank, but save a little to pour on the carburetor (take off the air filter first). Or, ask for help.
 6. Try to get the car started. It may take a little while and more gas on the carburetor. When it starts, put the air filter back on and you're off! But stop at a gas station to "fill-er-up" soon.
3. Towing - if your car breaks down it may have to be towed. Remember these hints:
1. A car with an automatic transmission should not be towed with its rear wheels on the ground.
 2. A front-wheel drive vehicle should not be towed with its front wheels on the ground.
 3. If another car tows a car with a manual transmission, a tow bar is needed. 25

QUICK CHECKS FOR YOUR CAR-

Do them regularly

1. Check Tires
 - a. small tires 24-26 psi.
 - b. medium tires 26-28 psi.
 - c. large tires 30-32 psi.**For radials follow recommended psi.
2. Check oil
3. Check transmission fluid (if car is automatic)
**when engine is hot
4. Power steering fluid.
5. Check battery (water should be over plates inside).
6. Check fan belts (there should be a little slack)
**not much.
7. Check hoses
 - a. radiator
 - b. heater hoses
 - c. by-pass hose
8. lights
 - a. head lights
 - b. high beams
 - c. turn signals
 - d. parking lights
 - e. license plate light
 - f. stop lights
 - g. emergency lights (flasher)
9. Check air filter (if no light can be seen through it, replace)
10. Check PCV valve (positive crankcase ventilation)
11. Check brake fluid
12. Check wipers
13. Check water level in radiator.
 - a. check anti-freeze
14. Check fuses first, (if lights go out, no fan for heater, horn, dash board lights, turn signals).

Crossword Puzzle



Can you fill in the missing words?

ACROSS →

2. a person who works on cars.
3. at a _____ service station - someone else puts gas in your car.
5. the person who puts gas in your car
7. _____ manual
8. TO KEEP YOUR CAR RUNNING SMOOTHLY _____ SAFELY.
9. the part of the gas pump that fits in your gas tank.
10. _____ guage - shows how hot the car is.

DOWN ↓

1. the gas's anti-knock quality
2. regular car care.
3. a tire that has lost some of its air pressure.
4. water and anti-freeze
6. a truck or car pulling another car

PRETEST - MAINTENANCE

Is the sentence true (T) or false (F)? Circle
T if it is TRUE and F if it is FALSE.

1. T F Maintenance means taking care of your car.
2. T F You should give your car a good maintenance check-up about once a year.
3. T F Washing and waxing the outside of the car are part of good maintenance.
4. T F The owner's manual of your car will help you learn how to take care of your car.
5. T F A mechanic has to change the car's oil.
6. T F The most frequent care you must give your car is to check the oil.
7. T F Most cars use gas for fuel.
8. T F In the winter, try to keep your gas tank $\frac{1}{2}$ full.
9. T F There are three main kinds of gas - leaded, unleaded, and octane.
10. T F If your car doesn't need unleaded gas, you may use either leaded or unleaded gas.
11. T F If the octane of the gas is too low for your car, it won't burn fast enough.
12. T F Gas is usually cheaper at a full-service gas station.
13. T F In a self-service station, you put the gas in your car.
14. T F In a full-service station, you may also check your oil, water, and other fluids, yourself.
15. T F When you put gas in your car, you must first take the hubcap off the gas tank.

16. T F The machine that pumps the gas and counts the gallons is called a gas pump.
17. T F It is okay to smoke when you put gas in your car.
18. T F When you check the oil in your motor you use a dipstick.
19. T F You use antifreeze in the radiator of your car only in the winter.
20. T F All tires need at least 30 psi (pounds per square inch) air pressure.
21. T F You should change your car's oil about once a year.
22. T F Inspection is required in Pennsylvania two times a year.
23. T F If your engine is too hot, keep it running slowly so that the fan cools it.
24. T F If the oil pressure of the car is low, stop the car.
25. T F If the warning light or the ammeter shows that the electricity is being taken from the battery, stop the car.

POST-TEST

Part I: T - F If the sentence...

1. T F Maintenance means taking care of the motor of your car.
2. T F In the winter, try to keep your gas tank $\frac{1}{2}$ full.
3. T F If your car doesn't need unleaded gas you may use either leaded or unleaded.
4. T F Gas is usually cheaper at a full-service gas station.
5. T F You use antifreeze in the radiator of your car all year.
6. T F All tires need at least 30 psi.
7. T F Inspection is required two times a year in Pennsylvania.
8. T F If your engine is too hot, keep it running.
9. T F If the oil pressure of the car is low, stop the car.
10. T F If the warning light or the ammeter shows that electricity is being taken from the battery, stop the car.

Part II: Multiple choice...

11. Which is not a part of maintenance of the car?
 - a. washing the car
 - b. changing the oil
 - c. insuring the car
12. A good place to learn about your car is from the _____.
 - a. driver's manual
 - b. owner's manual
 - c. buyer's manual

13. What do cars not use for fuel?
- a. oil
 - b. gas
 - c. diesel fuel
14. The person at a full-service gas station who puts gas in your car is called _____.
- a. a mechanic
 - b. an attendant
 - c. a salesperson
15. The part of the gas pump that fits into your car's gas tank is the _____.
- a. snozzle
 - b. noggle
 - c. nozzle
16. If your car passes state inspection you get a new _____.
- a. sticker
 - b. license plate
 - c. registration card
17. If you have a flat tire you use the _____ to change it.
- a. jack
 - b. jake
 - c. jim

III Fill in the blank...

18. Regular car care is called _____.
19. If your engine makes a "knocking", use higher _____ gas.

20. At a _____-service station, you put the gas in your car.
21. Use a _____ to check the oil often.
22. Check the fan belt and hoses for _____.
23. Some states have compulsory motor vehicle _____ programs.
24. When you have a flat tire you must change it and put on the _____.
25. If your car breaks down it may have to be _____ to a mechanic or garage.

DO YOU KNOW THESE TERMS?

Page 1:

1. maintenance = regular car care
mantenimiento
Bảo Trì.
2. owner's manual = the book of instructions and
 suggestions that comes with
 the car.
manual del dueño
Sách giải thích cách sử dụng xe.

Page 3:

3. fuel = what makes the car go - gasoline
 (gas) or diesel fuel; leaded and
 unleaded.
gasolina
Nhiên liệu.
4. octane = a measure of the gas's anti-
 knock quality.
octano
Chất ôc-tan chứa trong xăng dùng để đo
giá trị của xăng.

Page 5:

5. self-service gas station = you put the gas in
 your car.
gasolinera de autoservicio
Trạm xăng tự đổ lấy.
6. attendant = the person who works at a gas station
 and puts gas in cars in a full-service
 station.
empleado
Người Đổ xăng

7. gas cap = the top of the gas tank that
you screw off.

tapa de gasolina

Nắp thùng xăng

8. nozzle = the part of the gas pump at the
end of the hose that fits into
your car's gas tank.

la abertura

Đầu ống bơm xăng

Page 8:

9. dipstick = the long metal "stick" beside
the motor that you use to check
the oil.

instrumento para medir el nivel del aceite

cây đo dầu

10. coolant = water and antifreeze in the
radiator.

anticongelante

Nước và nước làm giảm độ đông đặc dùng trong
bình nước xe hơi.

Page 11:

11. pressure gauge = measures the air pressure in
your tires.

medidor de la presión

Đồng hồ canh bánh xe.

Page 14:

12. mechanic = a person who works on cars.

mecánico

Thợ máy

Page 17:

13. temperature gauge = tells the heat of the motor.
medidor de la temperatura
Nhiệt Kế (Đồng hồ đo nhiệt độ).
14. oil pressure gauge = tells the pressure at which
the oil is being pumped through
the engine.
medidor de la presión del aceite
Đồng hồ đo áp xuất dầu.
15. ammeter = shows if electricity is going to or
from the battery.
amperímetro
Đồng hồ đo chiều dòng điện.

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16. compulsory motor vehicle inspection = a required
check-up on the safety of your
car done by a mechanic who is
approved by the state.
inspección obligatoria del vehículo
Luật bắt buộc phải khám xe

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17. flat = a tire that lost some of its air
pressure.
goma desinflada
Xẹp bánh xe.

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18. towing = a truck or car pulling another car.
remolcar
Xe hủ được kéo bởi xe khác.